

A new desert psocid from Namibia (Insecta: Psocoptera: Trogiidae)

Charles LIENHARD

Muséum d'histoire naturelle, c. p. 6434, CH-1211 Genève 6, Switzerland.

E-mail: charles.lienhard@mhn.ville-ge.ch

A new desert psocid from Namibia (Insecta: Psocoptera: Trogiidae). -

A single female of a new species representing a new genus of the family Trogiidae (Psocoptera: Trogiomorpha: Atropetae) is described and illustrated: *Spinatropos philippi* gen. n., sp. n. The specimen has been collected in an unusual biotope for Psocoptera, at Diaz Point (Lüderitz), on a rocky desert headland with hardly any vegetation.

Key-words: Psocoptera - Trogiidae - new genus - new species - desert fauna - Namibia.

INTRODUCTION

Almost nothing is known on Psocoptera of Namibia. The only psocid recorded from this country (from Windhoek) is the cosmopolitan and usually domestic species *Liposcelis bostrychophila* Badonnel, 1931 (cf. Checklist of Southern African Insects on Internet: <http://www.ru.ac.za/departments/zooento/Martin/Insects.html>).

The present material has been collected by N. P. & M. J. Ashmole under stones on a rocky desert headland with hardly any vegetation near Diaz Point (Lüderitz), a very unusual biotope for Psocoptera. These insects generally live on vegetation, mostly trees or shrubs, or in leaf-litter (cf. Lienhard, 1998a). An important factor which enables a psocid to live in the above mentioned biotope could be the proximity to the sea, which guarantees a constantly high relative humidity of the air. The occurrence of a psocid of the genus *Liposcelis* Motschulsky, 1852 on apparently "sterile" littoral limestone rocks in the Mediterranean (Cyprus) has been reported by Lienhard (1998b). It would be worthwhile for ecologists to pay more attention to psocids accidentally captured in such unusual situations.

Besides these ecological aspects the present material is also interesting from a taxonomic and perhaps ethological point of view. It represents a very characteristic new species of the family Trogiidae which cannot be placed in one of the hitherto known genera of this family. Its most striking diagnostic character, the presence of two short stout externoapical spurs on each of the somewhat elongated third valvulae (fig. 1) may prove to be connected with special ovipositional behaviour. As known up to now, all Psocoptera lay their eggs on the surface of a substrate (cf. Lienhard, 1998a). The new species, however, seems to be equipped to slightly dig in its eggs into a sandy soil.

According to N. P. Ashmole (*in litt.*) there were small deposits of sand or fine rock fragments in the crevices of its habitat at Diaz Point. Similar digging spines on ovipositor are known in other insects, e.g. Diptera, where they are present in sand-dwelling Therevidae (cf. Irwin & Lyneborg, 1981: p. 514, fig. 22) or in the essentially dune-inhabiting species *Helina protuberans* Zett. (Muscidae), which lays its eggs into sandy soils (cf. Hennig, 1964: p. 209, Textfig. 46).

Spinatropos gen. n.

Diagnosis. Apterous, mesothorax in dorsal view about of same width as prothorax, metathorax distinctly wider. Body densely pubescent, excepting the almost bald postclypeus, which bears only a few peripheral hairs. Postclypeus of normal shape, not exceedingly bulging. Compound eyes well developed, hemispherical, with some small hairs in dorsal half, ocelli absent. Maxillary palpus (fig. 4) with fourth (terminal) segment (P4) of cylindrical shape, some stout setae present in apical half of P2, P3 and P4, no forked sensillum on P4. Laciniae symmetrically developed, lacinial tip tridentate, teeth diverging and well developed (fig. 3). Hind tibia with two apical spurs and two spurs on inner face in apical half. Pretarsal claw lacking preapical tooth, pulvillus long and slender, its tip slightly enlarged (fig. 6). 8th sternite of the female without sclerified knob which could be used in sound production (cf. Lienhard, 1998a: fig. 26m, *Trogium pulsatorium*). Third valvula (fig. 1) somewhat elongated, as typical of the family-group Atropetae, with spiny pilosity, two short stout externoapical spurs and one slender normal seta near tip. Second valvula (fig. 1) relatively well developed, reaching almost to the middle of the third valvula. Spermapore simple (fig. 5). Spermatheca with two oval parietal glands of about equal dimensions, situated close to each other in the proximal zone of the vesicle (fig. 7). Glands with numerous pores, no papillae (fig. 8). Spermatophore with very long tubular part (fig. 7). Male unknown.

Type species. *S. philippi* sp. n.

Etymology. Spina (lat.) = spine, an allusion to the particular pilosity of the third valvula. Atropos = one of the three Fates, the antique goddesses of destiny; *Atropos* Leach, 1815 is a synonym of *Trogium* Illiger, 1798 and gave rise to the family-group name Atropetae. In analogy to *Atropos* the new name is of feminine gender.

Discussion. See discussion of the type species.

Spinatropos philippi sp. n.

Figs 1-8

MATERIAL

Holotype ♀. Namibia: Diaz Point (Lüderitz), rocky desert biotope with hardly any vegetation, relatively close to the sea, by visual seaching under stones, 30.XI.1994, leg. N. P. & M. J. Ashmole (sample nr 3090) (Muséum d'histoire naturelle de Genève).

ETYMOLOGY

The species is dedicated to N. Philip Ashmole, one of its collectors, in acknowledgement of his tireless efforts in collecting psocids in biotopes where they "should not occur".

DESCRIPTION (♀)

Coloration. Body, legs and antenna whitish to light brown. Compound eye black (after 4 years in alcohol). Apical half of flagellar segments darker brown than basal half in basal part of the antenna, flagellar segments in its apical part entirely brown.

Morphology. See generic diagnosis, with the following complements. Vertical and frontal sutures distinct. Both antennae damaged, one with 22, the other with 11 segments. Marginal sensilla of labrum (fig. 2) typical of the family Trogiidae (cf. Badonnel, 1977). The complete aptery of the specimen is real and not due to broken winglets. This is supported by the absence of insertion points of winglets and by the even pilosity of thoracic tergites (in the frequently encountered cases of micropterous or brachypterous Trogiidae where winglets are broken, insertion points are visible on mesothoracic tergite and the lateral parts of the metathoracic tergite are bald, as it has been figured for the genus *Cerobasis* Kolbe, 1882 by Lienhard, 1998a: fig. 24c). Mesothorax (in dorsal view) shorter than half width of vertex. No coxal organ differentiated. Femora somewhat thickened, hind femur about three times as wide as hind tibia. Hind tibia with some long hairs on outer face. First segment of hind tarsus with numerous stout spur-like setae on ventral face. Epiproct bald in the middle, with some lateral hairs. Paraprocts with a distinct anal spine on hind margin. Subgenital plate absent, ovipositor valvulae basally covered by some membranous folds. The wall of the spermathecal vesicle bears numerous fine pores, especially in the more distal half (fig. 7). The length of the oval spermathecal glands is about 125 µm, each gland bears much more than 100 pores (fig. 8).

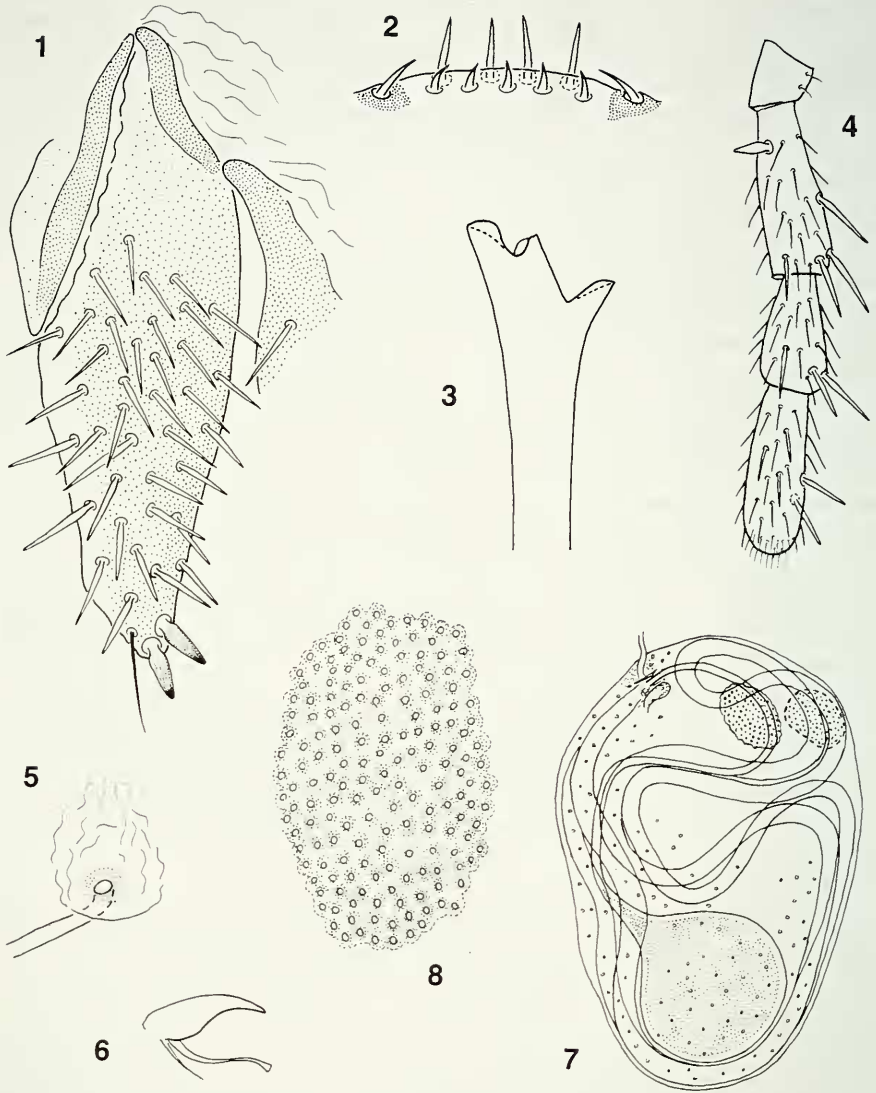
Measurements. Body length = 2.0 mm. Vertex (width of head capsule) = 650 µm. Length of hind femur = 520 µm. Length of hind tibia = 750 µm. Length of hind tarsomeres (measured from condyle to condyle): t1 = 320; t2 = 72; t3 = 90.

Remark. The male is not yet known, but the presence of a spermatophore in the spermatheca of the female gives evidence of the bisexuality of the species.

DISCUSSION

Within the family Trogiidae (sensu Smithers, 1990) the new genus is characterized by the very particular spiny pilosity of the third valvula, especially by the presence of two stout externoapical spurs, but also by the cylindrical shape of the terminal segment (P4) of the maxillary palpus. In all other non-fossil genera, P4 is at least slightly enlarged apically, often much enlarged (hatchet-shaped). In the genera where females are known (not known in *Anomocopeus* Badonnel, 1967) the pilosity of the third valvula consists of normally shaped slender setae, as usual in the family-group Atropetae. The genus can also be distinguished from most of the other genera (amber fossils included) by its complete aptery. The only other apterous genera are *Anomocopeus* and *Mymicodipnella* Enderlein, 1909; some apterous species are also known in the large genus *Cerobasis*.

Nothing exact is known about the biology of the new species, for some general remarks, see the introduction.



FIGS 1-8

Spinatropos philippi gen. n., sp. n., female: 1, ovipositor valvulae; 2, marginal sensilla of labrum; 3, lacinial tip; 4, maxillary palpus; 5, spermapore; 6, pretarsal claw; 7, spermatheca, containing one spermatophore; 8, parietal gland of spermatheca.

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